



Rec'd PCT/PTC 07 JUN 2005
PCT/GB2003/005345



PRIORITY DOCUMENT

SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)

The Patent Office

Concept House

Cardiff Road

Newport

South Wales

NP10 8QQ

RECEIVED
22 JAN 2004

WIPO PCT

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed

Dated 13 January 2004

BEST AVAILABLE COPY

**The
Patent
Office**

Patents Act 1977
(Rule 16)

- 9 DEC 2002

10DEC02 E769735-1 002136
P01/7700 0.00-0228713.4

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office
Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference

RJ/RD/N13292

2. Patent application number
(The Patent Office will fill this part)

0228713.4

3. Full name, address and postcode of the or of each applicant (*underline all surnames*)

Barron McCann Limited
BeMac House
Fifth Avenue
Letchworth Business Park
Letchworth, Herts, SG6 2HF
United Kingdom

Patents ADP number (*if you know it*)

4042263002

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

Method and Apparatus for Secure TCP/IP Communication

5. Name of your agent (*if you have one*)

Williams Powell

"Address for service" in the United Kingdom to which all correspondence should be sent (*including the postcode*)

4 St. Paul's Churchyard
London
EC4M 8AY

Patents ADP number (*if you know it*)

5 830310001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (*if you know it*) the or each application number

Country

Priority application number
(*if you know it*)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application.

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (*answer 'Yes' if:*)

Yes

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body

9. Enter the number of sheets for any of the following items you are filing with this form.
Do not count copies of the same document

Continuation sheets of this form

Description 2

Claim(s)

Abstract

Drawing(s)

10. If you are filing one of the following,
state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right
to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination
and search (*Patents Form 9/77*)

Request for substantive examination
(*Patents Form 10/77*)

Any other documents
(please specify)

11.

I/we request the grant of a patent on the basis of this application.

Signature

Date

9 December 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

Mr Lee Anderson 020 7329 4400

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.
- b) Write your answers in capital letters using black ink or you may type them.
- c) If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- d) If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- e) Once you have filled in the form you must remember to sign and date it.
- f) For details of the fee and ways to pay please contact the Patent Office.

Method and Apparatus for Secure TCP/IP Communication

The present invention seeks to provide a method of and apparatus for securely establishing Internet connections.

Public IP networks have become pervasive. Organisations now wish to use these networks to provide interconnectivity between trusted areas or devices. The trusted devices may be located, for example, at branch offices or homes. Trusted areas could include corporate offices.

In light of the public nature of these networks, organisations need to take defensive measures against direct attack. Existing session establishment for TCP/IP is inherently insecure and prone to exploitation by active and intrusion attacks. Standard TCP/IP services reveal their presence to any attacker on the Internet, thus making them available for exploitation and attack. Denial of service attack and SYN flood attacks exploit these weaknesses.

The proposed method provides a solution for protecting against these attacks whilst at the same time providing a scalable and flexible method for exchanging data securely over Public IP networks using TCP connections. The system provides for the generation and transmission of datagrams to establish a TCP/IP connection, which datagrams do not reveal the data normally provided when initiation a TCP/IP connection. In its simplest form, the datagram provides simply destination and source addresses. Optionally, the datagram can also include information relating to the initialisation for the TCP connection.

The datagram can, if desired, include cryptographic functions.

In particular the use of specific datagrams for session establishment provides for the end-point devices, initiator and receiver, to be invisible to attackers on the Public IP

infrastructure. TCP is chosen in the preferred embodiment as a reliable data carrier over IP networks.

Prior to the establishment of a TCP/IP connection the initiating part sends a datagram to the receiving device requesting a connection be initiated by the receiving party to the initiating party. The datagram may optionally contain data content which can be used by the receiving party to authenticate the initiating party. Following receipt of the datagram the receiving party opens a TCP connection to and, optionally, negotiate a payload encryption key with the initiating party. It would be preferable at this stage for both ends to authenticate each other.

Where reference is made to 'Public IP Network(s)' the intention is to include IP networks which are less trusted than the trusted domains which are being interconnected.

In the preferred embodiment, the end points are boundary network devices, protecting trusted areas from the un-trusted IP network. Receiving devices would await incoming datagrams requesting connections. These could contain a payload which offers authentication of the requesting device. The responding device can process these requests as system resources allow, although this may be accelerated by the use of specific hardware devices. Once the responding device evaluates a requesting datagram as acceptable it will attempt to open a TCP connection to the initiating device.

Once opened successfully both entities can use the TCP/IP connection to communicate. The option exists to incorporate TCP payload encryption at this point to ensure the date being transferred is secure and will remain confidential.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.